

Clean Set of Pending Claims
U.S. Patent Application No. 09/635,956

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1. (Amended) A slot machine, comprising:
a central processing unit for operating the slot machine in response to a wager; and
a reel mechanism including a motor, a symbol-bearing reel, and a reel driver, said motor including a rotatable shaft, said reel being mounted to said shaft, said reel driver including a local microcontroller distinct from and coupled to said central processing unit, said reel driver being coupled to said motor to cause said motor to rotate said reel; said local microcontroller performing low-level reel driver operations independent from said central processing unit;
wherein said central processing unit sends configuration data to said local microcontroller for configuring said local microcontroller to a reel spinning game conducted with the slot machine.
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2. The slot machine of claim 1, wherein in response to actuation by a player, said reel is rotated and stopped to place the symbols of said reel in visual association with one or more pay lines.
3. The slot machine of claim 1, wherein said low-level reel driver operations include monitoring said reel and at least partially controlling its position.
4. The slot machine of claim 3, wherein said local microcontroller monitors said reel by sampling its state multiple times per second in real time, and responds with control commands for controlling the position of said reel.
5. The slot machine of claim 1, wherein said local microcontroller is serially connected to said central processing unit.

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6. (Amended) A slot machine, comprising:
a central processing unit for operating the slot machine in response to a wager; and
a reel mechanism including a motor, a symbol-bearing reel, and a reel driver, said motor including a rotatable shaft, said reel being mounted to said shaft, said reel driver including a local microcontroller distinct from and coupled to said central processing unit, said reel driver being coupled to said motor to cause said motor to rotate said reel, said local microcontroller performing low-level reel driver operations independent from said central processing unit;
wherein said reel driver includes a printed circuit board proximate said reel and oriented generally perpendicular to an axis of rotation of said reel, said microcontroller being mounted to said printed circuit board.
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7. The slot machine of claim 1, wherein said central processing unit issues high-level commands to said local microcontroller, said high-level commands including a start spin command for spinning said reel and a stop command for stopping said reel at a specified stop position.

8. The slot machine of claim 1, wherein said reel includes an encoder for indicating the position of said reel, and wherein said reel driver includes an optical detector for reading said encoder, said local microcontroller being coupled to said optical detector to monitor the position of said reel.

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9. (Amended) A slot machine, comprising:
a motor including a rotatable shaft;
a symbol-bearing reel mounted to said shaft;
a reel driver including a local microcontroller serially linked to said central processing unit, said reel driver being coupled to said motor to cause said motor to rotate said reel, said local microcontroller performing low-level reel driver operations related to rotation of said reel; and

a central processing unit issuing high-level commands to said reel driver related to the rotation of said reel;

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wherein said central processing unit sends configuration data to said local microcontroller for configuring said local microcontroller to a reel spinning game conducted with the slot machine.

10. The slot machine of claim 9, wherein said high-level commands include a start spin command and a stop command, said start spin command instructing said reel driver to cause said motor to rotate said reel, said stop command instructing said reel driver to stop said motor from rotating said reel at a specified stop position

11. The slot machine of claim 10, wherein said low-level commands include sampling a state of said reel in real time and at least partially controlling its position.

12. (Amended) A slot machine, comprising:

a motor including a rotatable shaft;

a symbol-bearing reel mounted to said shaft;

a reel driver including a local microcontroller, said reel driver being coupled to said motor to cause said motor to rotate said reel; and

a central processing unit for issuing a start spin command and a stop command to said reel driver, said start spin command instructing said reel driver to cause said motor to rotate said reel, said stop command instructing said reel driver to stop said motor from rotating said reel at a specified stop position;

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said local microcontroller monitoring said reel in real time and at least partially controlling its position after said start spin command and prior to said stop command;

wherein said central processing unit sends configuration data to said local microcontroller for configuring said local microcontroller to a reel spinning game conducted with the slot machine.

13. The slot machine of claim 12, wherein said reel includes an encoder for indicating the position of said reel, and wherein said reel driver includes an optical detector for reading said encoder, said local microcontroller being coupled to said optical detector to monitor the position of said reel in real time.

14. (New) The slot machine of claim 1, wherein said configuration data includes at least one of the type of slot machine, a number of symbols on said reel, how to drive said motor, and a number of steps in said motor if said motor is a stepper motor.

15. (New) The slot machine of claim 1, wherein in response to receiving said configuration data, said local microcontroller processes said configuration data and reports a status of configuration of said local microcontroller back to said central processing unit.

16. (New) The slot machine of claim 9, wherein said configuration data includes at least one of the type of slot machine, a number of symbols on said reel, how to drive said motor, and a number of steps in said motor if said motor is a stepper motor.

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17. (New) The slot machine of claim 9, wherein in response to receiving said configuration data, said local microcontroller processes said configuration data and reports a status of configuration of said local microcontroller back to said central processing unit.

18. (New) The slot machine of claim 12, wherein said configuration data includes at least one of the type of slot machine, a number of symbols on said reel, how to drive said motor, and a number of steps in said motor if said motor is a stepper motor.

19. (New) The slot machine of claim 12, wherein in response to receiving said configuration data, said local microcontroller processes said configuration data and reports a status of configuration of said local microcontroller back to said central processing unit.

20. (New) A method of configuring a slot machine to a reel spinning game conducted with the machine, the method comprising:

providing a physical symbol-bearing reel;

providing a reel controller for performing low-level operations related to movement of said reel;

providing a central processing unit for issuing high-level commands to said reel controller related to the movement of said reel; and

sending configuration data from said central processing unit to said reel controller to configure said reel controller to the reel spinning game.

21. (New) The method of claim 20, wherein said configuration data includes at least one of the type of slot machine, a number of symbols on said reel, how to drive said motor, and a number of steps in said motor if said motor is a stepper motor.

22. (New) The method of claim 20, further including processing said configuration data with said reel controller and reporting a status of configuration of said reel controller back to said central processing unit.

23. (New) A method of configuring a slot machine to a reel spinning game conducted with the machine, the method comprising:

providing a physical symbol-bearing reel including an encoder for indicating a position of said reel;

providing a reel controller for performing low-level operations related to movement of said reel;

providing a central processing unit for issuing high-level commands to said reel controller related to the movement of said reel; and

sending a command from said central processing unit to said reel controller to determine a type of said encoder.

24. (New) The method of claim 23, wherein the type of said encoder is based on a number of tabs on said encoder.

25. (New) The method of claim 23, further including determining the type of said encoder with said reel controller.

26. (New) The method of claim 25, further including sending configuration data from said central processing unit to said reel controller to configure said reel controller to the reel spinning game, and using said reel controller to compare the determined type of said encoder with said configuration data.

27. (New) The method of claim 26, further including reporting an error back to said central processing unit if the determined type of said encoder conflicts with said configuration data.

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28. (New) The method of claim 25, wherein the step of determining the type of said encoder includes causing a motor to spin said reel and detecting a physical characteristic of said encoder.

29. (New) A method of configuring a slot machine to a reel spinning game conducted with the machine, the method comprising:

providing a physical symbol-bearing reel;

providing a reel controller for performing low-level operations related to movement of said reel; and

providing a central processing unit for issuing high-level commands to said reel controller related to the movement of said reel, said high-level commands including a command for informing said reel controller of at least one of an acceleration profile for accelerating said reel and a deceleration profile for decelerating said reel.
